Inconel 625 Bright Bar (UNS N06625) — Technical Data Sheet

Bright Bar supplied to ASTM B446 / ASME SB446 — values are minimum requirements per the governing ASTM specification.

Chemical Composition (ASTM B446)

Element	Content
Nickel (Ni)	Balance
Chromium (Cr)	20.0–23.0%
Molybdenum (Mo)	8.0–10.0%
Niobium + Tantalum (Nb + Ta)	3.15–4.15%
Iron (Fe)	5.00% max.
Cobalt (Co)	1.00% max.
Carbon (C)	0.10% max.
Manganese (Mn)	0.50% max.
Silicon (Si)	0.50% max.
Phosphorus (P)	0.015% max.
Sulfur (S)	0.015% max.
Aluminum (Al)	0.40% max.
Titanium (Ti)	0.40% max.

Minimum Room-Temperature Mechanical Properties (Bar & Rod)

Grade / Condition	Product Size	Tensile Strength	Yield Strength, 0.2% Offset	Elongation
Grade 1 — Annealed (≥871 °C / 1600 °F)	Up to 101.6 mm (4 in.) dia.	≥120 ksi (827 MPa)	≥60 ksi (414 MPa)	≥30%
Grade 1 — Annealed (≥871 °C / 1600 °F)	Over 101.6 to 254 mm (4–10 in.) dia.	≥110 ksi (758 MPa)	≥50 ksi (345 MPa)	≥25%
Grade 2 — Solution annealed (≥1093 °C / 2000 °F)	All sizes	≥100 ksi (690 MPa)	≥40 ksi (276 MPa)	≥30%

Physical Properties (Approx., annealed)

Property	Value
Alloy	Inconel 625
UNS	N06625
Werkstoff	2.4856
Density	Approx. 8.44 g/cm³
Melting Range	Approx. 1290–1350°C
Alloy Type	Nickel-chromium-molybdenum
Strengthening	Solid-solution (Mo, Nb)

Standards and Designations

Standard	Product / Application
ASTM B446	Nickel-chromium-molybdenum-niobium alloy bar and rod
ASME SB446	ASME specification for bar and rod
ASTM B443	Related UNS N06625 plate, sheet and strip specification
ASTM B444	Related UNS N06625 seamless pipe and tube specification
SAE AMS 5666	Nickel alloy 625 bar, forgings and rings (annealed)
DIN 17752 / 2.4856	Nickel alloy bar — European designation and standard
ISO 9723 / 9724	Nickel and nickel alloy bar and rod
BS 3076 NA21	Nickel alloy bar
VdTÜV 499	Pressure equipment approval (Europe)

Surface Finishes

Surface Condition	Typical Characteristics / Applications
Hot Finished	Supplied in the as-hot-worked condition; suitable for general industrial applications and further machining
Cold Drawn	Improved dimensional accuracy and surface finish, with increased strength from cold working
Bright Finished	Smooth, bright surface with improved dimensional control; suitable for applications needing a cleaner surface
Peeled	Machined surface with controlled diameter and improved uniformity, typically for further machining
Centerless Ground	Precision-ground surface with close dimensional tolerances and consistent diameter
Polished	Fine surface finish for applications needing reduced roughness and improved appearance
Rough Turned	Machined surface for large-diameter or forged bars, with allowance for further processing

Typical Supply Dimensions — Bright Bar

Product Form	Typical Supply	Length
Drawn Bright Bar	3–100 mm dia., cold drawn	1–6 m cut lengths
Ground Bright Bar	3–100 mm dia., held to h9	1–6 m cut lengths
Peeled Bright Bar	20–300 mm dia., machined skin	Custom
Bright Bar in Coils	Small diameters, coil stock	Coil

Values are for reference; the mill test certificate prevails for final acceptance. Dimensions, conditions, and surface finishes are confirmed at quotation.